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AN INVESTIGATION INTO THE IMPEDIMENTS TO TACIT KNOWLEDGE TRANSFER

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Abstract

This article describes a recent research study which conducted a systematic empirical investigation into the impediments to successful tacit knowledge transfer using a literature review, qualitative semi-structured interviews with six senior managers and a short questionnaire survey which was completed by each interviewee. The semi-structured interviews consisted of a detailed examination of tacit knowledge transfers including articulation of tacit knowledge, how long tacit knowledge takes to learn, methods of transfer and how long tacit knowledge transfer takes both to impart and to receive. Detailed analysis of the interview transcripts and survey data identified a number of common themes which are addressed in this article under five thematic headings as follows: *Actions Speak Louder than Words*; *Lost in Translation*; *Variety is the Spice of Life*; *Practice Makes Perfect*; and *No Man is an Island*.

The findings for the research confirmed the initial hypothesis that tacit knowledge transfer is highly problematic, and much more so than previous research suggests. It also confirmed that tacit knowledge transfer is a socially constructed activity that is rooted in action, is difficult to articulate and is imparted and learnt in a myriad of ways. The main conclusion drawn is that successful tacit knowledge transfer requires both a passage of time and repeated practice, and that such knowledge transfer is therefore extremely complex, highly personal, learnt in context, actively engaged with and reflected upon over time. Further research is required into the role of the body, the value of making mistakes, the difficulties in articulation of concepts of instinct and intuition, different learning styles and their impact on successful tacit knowledge transfer methods, the interweaving of the passage of time and continued repetition necessary to ensure successful tacit knowledge transfer.

Key words: acquisition; application; integration; stickiness; barriers

1. Introduction

Tacit knowledge is explained by Polanyi (1966, p. 4) as “we know more than we can tell”.

Polanyi’s writing identified some of the difficulties around the study of tacit knowledge.

However, since his seminal writing there has been somewhat limited research on tacit knowledge, particularly around the issues of its transfer. Some of the research regarding tacit knowledge transfer has been conducted by Szulanski (1996); Simonin (1999); Mowery, Oxley and Silverman (1996); Almeida, Song and Grant (2002); Bresman, Birkinshaw and Nobel (1999); and Dyer and Nobeoka (2000).

This article is a selective summary of the findings from my recent research study for a Masters in Strategic Management which conducted a systematic empirical investigation into the impediments to successful tacit knowledge transfer using a literature review, qualitative semi-structured interviews with six senior managers and a short questionnaire survey. The semi-structured interviews consisted of a detailed examination of tacit knowledge transfers including articulation of tacit knowledge, how long tacit knowledge takes to learn, methods of transfer and how long tacit knowledge transfer takes both to impart and to receive. Detailed analysis of the interview transcripts and survey data identified a number of common themes which are addressed in this article under five thematic headings as follows: *Actions Speak Louder than Words*; *Lost in Translation*; *Variety is the Spice of Life*; *Practice Makes Perfect*; and *No Man is an Island*.

A number of areas stood out. Tacit knowledge transfer is highly problematic, and much more so than previous research suggests. Tacit knowledge transfer is a socially constructed activity that is rooted in action. It is difficult to articulate and is imparted and learnt in a myriad of ways. Successful tacit knowledge transfer requires both a passage of time and repeated practice. Such knowledge transfer is therefore extremely complex, highly personal, learned in context, actively engaged with, and reflected upon over time.

A conceptual-analytical model for the study was developed inductively based on the interview and survey data. Informing that model were the findings that issues affecting successful tacit knowledge transfer cannot be separated into discrete topics and dealt with individually: that there is continued overlap, and, as with Gestalt psychology, “the whole is greater than the sum of the parts”. The conceptual model is represented as a jigsaw image and this metaphor aimed to illustrate the complex interweaving and overlapping nature of the role of the body, the value of mistakes, the impact of differing learning styles and complexities in the articulation of concepts, instinct and intuition. This research has highlighted in particular that the socially interactive aspect of tacit knowledge is intrinsic to its successful transfer.

This article addresses the following: key points about tacit knowledge from the literature focusing on the theories of Nonaka and Szulanski, research approach and emerging themes, outcomes of the research and finally, potential area for further research

2. Key points about tacit knowledge from the literature

2.1 Tacit Knowledge theory according to Ikujiro Nonaka

Ikujiro Nonaka is a Japanese author who is credited as one of the key writers in the area of knowledge and knowledge-creating companies. According to the Harvard Business Review, Ikujiro Nonaka's 1991 article, "The knowledge-creating company" helped to popularise the notion of "tacit" knowledge. Explicit knowledge is explained as knowledge that is formal and systematic and therefore can be easily expressed, communicated and shared. It often comes in the form of rules, routines, procedures, books, manuals *etc.* He explains tacit knowledge as highly personal, rooted in action, difficult to formalise and therefore difficult to communicate to others. He holds that such knowledge is partly technical skills and partly "know how". It has a cognitive dimension and consists of beliefs, mental nodes and perspectives that are so ingrained that they are taken for granted and so are difficult to articulate. This echoes the assertions of Polanyi that "we know more than we can tell".

Nonaka (1991) emphasises building on the acquisition, conversion and application of knowledge. He describes what he terms "the spiral of knowledge" to illustrate the pattern for creating knowledge in any organisation, as outlined in Figure 1 below.

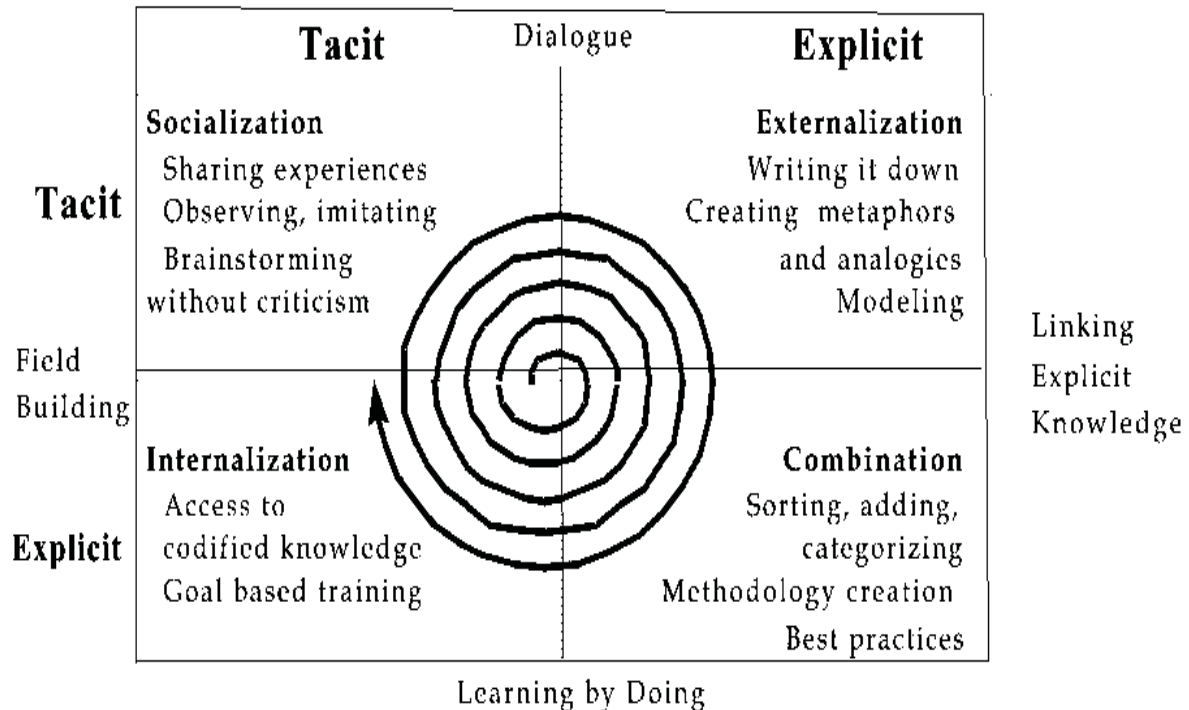


Fig 1: The Spiral of Knowledge

Nonaka and Takeuchi, 1995

Nonaka (1994) argues that the process of creating knowledge in an organisation is never-ending, and rather than being limited to the company, such knowledge involves many interfaces with the environment. These processes form multi-layered loops that can take place at the same time, sequentially or non-sequentially. It is, as with the knowledge spiral, a circular process.

“The concept of ‘Ba’: Building a foundation for knowledge creation” (Nonaka and Konno, 1998) further builds on Nonaka’s earlier articles. ‘Ba’, a Japanese word that roughly translates into the word ‘place’, is described as a shared physical, virtual or mental space for emerging relationships that serves as a foundation of knowledge creation. They assert that knowledge is intangible and is embedded in these shared spaces, and if knowledge is separated from ‘Ba’, it turns into tangible information. They propose that knowledge needs to be nurtured, supported, enhanced and cared for and that “knowledge is manageable only insofar as leaders embrace and foster the dynamism of knowledge creation” (1998, p. 53).

2.2 Szulanski (1996)

Szulanski (1996) developed the notion of “stickiness” to describe the difficulties in the transfer of tacit knowledge. These are divided into knowledge characteristics and situational characteristics. The knowledge characteristics reflect causal ambiguity where the precise reasons for success or failure of the knowledge transfer cannot be explained even after the event. They include tacitness, complexity, robustness and integrity. Situational characteristics include source, recipient, relationship, practice and organisational context.

In the research, Szulanski (1996) analyses the internal stickiness of knowledge transfer, and tests the resulting model using canonical correlation analysis of a data-set consisting of 271 observations of 122 best-practice transfers in eight companies: AMP, AT&T Paradyne, British Petroleum, Burmah Castrol, Chevron Corporation, EDS, Kaiser Permanente and Rank Xerox. Companies were directed to search for transfers of important activities or processes between peer units, and to prefer ones that showed evidence of difficulty during the transfer and in the adaptation of the practice by the recipient. They were also instructed to rule out practices that could only be performed by a single individual and to choose only practices that required the coordinated effort of many people. A single balanced five-point Likert-type scale was used.

Contrary to conventional wisdom, which blames primarily motivational factors, the study findings show the major barriers to internal knowledge transfer to be knowledge-related factors such as the recipient’s lack of absorptive capacity, causal ambiguity and an arduous relationship between the source and the recipient. Those three constructs represent knowledge barriers. It is stated that absorptive capacity is a function of the recipient’s knowledge endowment prior to the transfer; causal ambiguity reflects the recipients’ depth of knowledge or irreducible uncertainty about cause/effect relationships; and the quality of the relationship affects the recipient’s ability to acquire knowledge when needed, *i.e.* the relationship serves as a conduit for knowledge.

Murray and Hanlon (2010) found that while Szulanski’s eight areas of difficulty in transferring knowledge existed, the specifics varied greatly. They found that the level of tacitness had a major impact on the transfer of knowledge, as did the size of the gap

between the knowledge of the source and the recipient. They also found that the influence of the source held particular importance.

3. Research approach and emerging themes

3.1 Research strategy

As highlighted by Hogan *et al* (2009), qualitative research is concerned with social and personal processes and relations, but it is subjective research and the findings from such research must be rigorous and dependable. In order to increase the rigour and dependability of the qualitative research in my study, a short questionnaire was administered to each of the six interviewees. Saunders *et al* (2009, p.151) refer to Curran and Blackburn (2001) who state that multiple-method techniques in data collection and analysis are increasingly used in business and management research.

The main primary research strategy selected for this study was semi-structured interviews. Immediately following the interview, a short questionnaire was administered to the six respondents. Each questionnaire consists of five closed questions. A scale of between one and four was given. The short questionnaire survey was undertaken to evaluate whether the qualitative research of the interviews was supported by data collated from quantitative research. This was found to be the case.

3.2 Emerging Themes

Tacit knowledge transfer is highly problematic, and much more so than previous research suggests. While many authors acknowledge the importance of sharing and managing knowledge across the organisation, it is widely recognised that there can be significant impediments to knowledge transfer. Researchers have highlighted different problems with regard to tacit knowledge transfer, namely: relationships and their impact on tacit knowledge transfer; network position; motivation; cultural context; the role of talk and language; and the role of personal knowledge.

While the results of this research have found consistency with the work of a number of authors, other themes have emerged also and these will be addressed in turn. The themes are:

1. Actions Speak Louder than Words
2. Lost in Translation
3. Variety is the Spice of Life
4. Practice Makes Perfect
5. No Man is an Island

3.2.1 Actions Speak Louder than Words

Tacit knowledge is rooted in action. Polanyi (1966, p. 15-16) states that our body is the ultimate instrument of all our external knowledge, whether intellectual or practical and that “in all our waking moments we are *relying* on our awareness of contacts of our body with things outside for *attending* to these things.”

This theme came across strongly in the interviews undertaken. Weick (1995) states that there is always slippage between words and what they refer to. He contends that while words approximate the territory they never map it perfectly. Du Plessis (2006) also refers to slippage and states that it must be taken into account that a percentage of knowledge will be ‘lost’ in the explicit account. This loss in translation is because tacit knowledge can never be translated one hundred percent accurately, as it is based on beliefs, intuition and perceptions.

3.2.2 Lost in Translation

As referred to previously, tacit knowledge has a cognitive dimension and consists of beliefs, mental nodes and perspectives that are so ingrained, they are taken for granted and so are difficult to articulate. The difficulties in the articulation of tacit knowledge can be underestimated and not fully recognised. Szulanski (1996) developed the notion of “stickiness” to describe the difficulties in the transfer of tacit knowledge.

Interviewees referred to instinct and intuition, which are extremely difficult to articulate in words. The articulation of concepts also proved particularly difficult in the transfer of tacit knowledge. In order to overcome the difficulties in the transfer of tacit knowledge, Nonaka (1991) advocates the use of figurative language, metaphor and analogy. Such techniques are

used extensively by interviewees in order to transfer tacit knowledge, particularly the use of examples and analogy.

One method used by interviewees is to adapt the language used. Another method used in overcoming the “lost in translation” issues in the transfer of tacit knowledge is to use a variety of methods of transfer, which will be addressed under the heading; Variety is the Spice of Life.

3.2.3 Variety is the Spice of Life

Individuals have different learning styles or approaches to learning and therefore methods used in teaching, or in this case, in the transfer of tacit knowledge must also be varied. David Kolb’s (1984) learning styles model is based on experiential learning where learning is a result of learner’s participation in events.

Interviewees used multi-method approaches in transferring tacit knowledge eg verbal, visual and physical methods, a mix of presentations, Q&A, one-to-one questions, informal conversation, examples, use of databases and networks in addition to an emphasis on observation. The above examples illustrate a variety of techniques and clearly support the findings of Almedia et al (2002) who assert that the intertwining of codified and tacit knowledge, and both formal and informal mechanisms, are required for successful knowledge building.

3.2.4 Practice Makes Perfect

Nonaka (1994) argues that the process of creating knowledge is never ending. This is supported by the research undertaken here, as a strong theme that emerged is the importance of time and repetition in building tacit knowledge, both for the person imparting the knowledge and for the recipient in receiving the tacit knowledge.

The interviewees found it difficult to quantify how long it took to them to gain their tacit knowledge, thus lending credence to Nonaka’s (1991) assertion that the process of creating knowledge is never ending. This is supported by the research undertaken here.

Each interviewee emphasised that their tacit knowledge had been built over a period of years. The on-going and continuous nature of tacit knowledge was referenced by a number of interviewees. For the learners, there appears to be a required combination of learning by doing, repetition and passage of time in order to fully absorb and retain the tacit knowledge being transferred. The impact of individual differences in learners was also highlighted. One interviewee emphasised the necessity of repetition, leaving knowledge to “sink in”, coming back to it to ascertain how the learner is progressing or if they are having difficulty with recall, then repetition after repetition in order to build on that knowledge. This echoes the assertions of Nonaka (1991) who emphasises building on the acquisition, conversion and application of knowledge, and that once a learner goes through the spiral of knowledge, it starts all over again, however, this time at a higher level.

3.2.5. No Man is an Island

The theme, No Man is an Island, reflects the fact that while knowledge resides within the individual as asserted by Grant (1996), tacit knowledge transfer is a socially constructed activity.

Tacit knowledge cannot be easily expressed, communicated or shared and as Nonaka (1991) states, it is highly personal. In his spiral of knowledge, the first stage in the transfer of tacit knowledge is socialisation, which is the implicit sharing of tacit knowledge directly with others through a combination of observation, imitation and practice. Such practices are clearly undertaken by the interviewees, as evidenced in the methods of tacit knowledge transfer referred to. The transfer methods are inherently social in nature; observing, follow up, being observed, Q&A, one to one questions, informal conversation, introductions to key players etc. Such methods were followed up with implementation of tacit knowledge in practice and also continued repetition, thus clearly reflecting Nonaka’s (1991) spiral of knowledge.

Human interaction in the transfer of tacit knowledge was almost an unspoken prerequisite assumption by interviewees, with the social interactive aspect as key. While Szulanski (1996) referred to the “stickiness” of tacit knowledge transfer and knowledge and situational

characteristics that would affect such transfer, interviewees stressed that knowledge transfer is not a once-off activity. The above illustrates that the transfer of tacit knowledge is a socially constructed activity, where indeed, “No Man is an Island.”

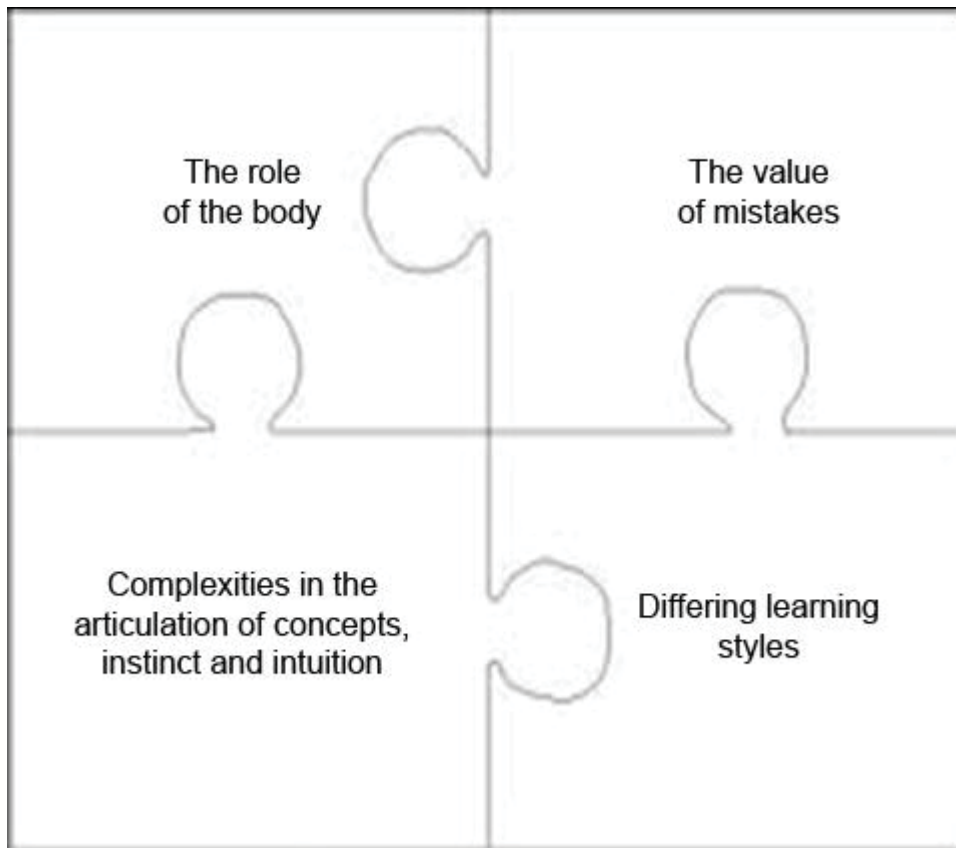
4. Outcomes of the Research

4.1 The complexity of tacit knowledge

As already stated, a conceptual-analytical model was developed inductively based on the interview data. A significant outcome of the research supports the assertions of Polanyi (1966, p.4) who stated that “we know more than we can tell”.

The research undertaken in this study shows that there are limitations in tacit knowledge transfer due to the many mitigating factors impinging on successful transfer. Therefore this research recommends a conceptual framework incorporating some of the significant factors in successful tacit knowledge transfer that heretofore have been neglected within the business and management paradigm.

The conceptual model was represented as a jigsaw image and this metaphor aims to illustrate the complex interweaving and overlapping nature of the role of the body, the value of mistakes, differing learning styles and complexities in the articulation of concepts, instinct and intuition. The research findings highlighted in particular that the socially interactive aspect of tacit knowledge is intrinsic to its successful transfer. A holistic approach must therefore be adopted when seeking to diminish obstructions or impediments in order to cultivate effective transfer of tacit knowledge.



4.2 The centrality of the body

A number of new issues have arisen that have heretofore not been addressed within the business and management body of knowledge. One new area is that of the role of the body in tacit knowledge transfer. While authors such as Gendlin (1964) are referenced with regard to the body and knowing, the role of the body has not been placed in tacit knowledge literature or empirical research within the field of business and management. The value of making mistakes has also been neglected in the current body of knowledge. The issue of the intricacies in imparting tacit knowledge related to the articulation of concepts, instinct and intuition has not heretofore been addressed either. It is acknowledged by authors such as Nonaka (1991) that tacit knowledge transfer is rooted in action. However, tacit knowledge transfer research to date does not take into account different learning styles or approaches to learning. Neither does it take into consideration the fact that tacit knowledge transfer methods must adapt to incorporate successful tacit knowledge methods that suit different learning styles. To date, the issue of time has been neglected within the body of knowledge relating to tacit knowledge transfer. However, time

and the related issue of continued repetition of the tacit knowledge gained over time, are two issues that need to be addressed.

Each of these issues has implications both for current and future areas of research.

4.3 Potential area for further research

Drucker (1993) contends that knowledge has become the only meaningful resource in business today, while Nonaka (1994) asserts that where the only certainty is uncertainty, knowledge is the one sure source of lasting competitive advantage. Other authors such as Prahalad and Hamel (1994) maintain that because knowledge accumulated through organisational learning is non-tradable and difficult to imitate, it is an important source of a firm's sustainable competitive advantage. However, tacit knowledge transfer is complex and potentially problematic, and much more so than previous research suggests. This research has highlighted in particular that the socially interactive aspect of tacit knowledge is intrinsic to its successful transfer.

Some of the areas for future research in the successful transfer of tacit knowledge are proposed as follows:

- The role of the body
- The value of mistakes
- Complexities related to the articulation of concepts, instinct and intuition
- Different learning styles and their impact on successful tacit knowledge transfer methods
- The interweaving of time and continued repetition of tacit knowledge gained.

While there are merits in researching each of these elements separately, richer data may be gained by studying the inter-relationship and over-lapping nature of these factors in a longitudinal study.

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